TOWN OF NEEDHAM
CONTRIBUTORY RETIREMENT SYSTEM

Actuarial Valuation Report

January 1, 2004

TABLE OF CONTENTS

P:\Actrl\19028Needham\Val04\[Needham04_Val.xls]Output

Report Summary:

Highlights	**January 1, 2003**	**January 1, 2004**
Contributions		
Funding Schedule FY 2005	$3,525,196	$3,525,196
Funding Schedule FY 2006	3,733,000	3,696,416
Funded Ratios		
GAS No. 25	70.4%	73.1%
Participants		
Actives	610	603
Inactives	163	175
Retirees and Beneficiaries	479	484
Disabilities	42	43
Total	1,294	1,305
Payroll		
Payroll of Active Members	$21,380,463	$21,633,442
Average Payroll	35,050	35,876
Normal Cost		
Employer	860,027	1,046,342
Employee	1,792,372	1,717,504
Administrative Expenses	125,000	125,000
Total	2,777,399	2,888,846
Actuarial Accrued Liabilities		
Actives	47,870,610	47,029,195
Retirees, Beneficiaries, Disabilities and Inactives	60,667,146	66,397,472
Total	108,537,756	113,426,667
Actuarial Value of Assets	76,356,568	82,910,726
Unfunded Actuarial Accrued Liabilities	$32,181,188	$30,515,941

Introduction

This report presents the Town of Needham actuarial valuation findings as of January 1, 2004, under the Commonwealth of Massachusetts Retirement System.

The actuarial valuation is based on:

- Provisions Chapter 32 of the Massachusetts General Laws, "M.G.L", as of January 1, 2004.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employee Retirement Administration Commission by the Town of Needham Contributory Retirement System
- Actuarial assumptions approved by the Retirement Board

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2004.

The valuation and forecast do not account for:

- Any subsequent changes in the law
- Chapter 32 of the M.G.L., Section 3(8)(c) transfers between systems
- State-mandated benefits
- Cost-of-living increases granted to retired members between 1982 and 1997. The cost of these benefits has been assumed by the State under Proposition Two and One-Half.

Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding such factors as mortality, retirement, disability, and withdrawal rates as well as both payroll, salary increases, and investment returns. A comparison of the current valuation and the prior valuation is made to determine how closely actual experience corresponded to anticipated occurrences. This analysis of the system provides insight into the overall quality of the actuarial assumptions and helps explain any change in the annual appropriation.

During the year, the total unfunded actuarial accrued liability decreased by 5.17% to $30,515,941. The decrease is the result of net favorable actuarial experience during the preceding year. The primary component of the favorable experience was an annual investment return more than the 8.25% assumption.

Actuarial Costs and Liabilities:

Normal Costs

The normal cost is the sum of the individual normal costs determined for each member as if the assumptions underlying the cost determinations had been exactly realized. An individual normal cost represents that part of the cost of a member's future benefits which are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and terminations) are included in this calculation. Anticipated employee contributions to be made during the year are subtracted from the total normal cost to determine employer normal cost. The total normal cost is divided by total payroll to determine the normal cost as a percent of pay. The normal cost is shown in Table I.

Table I

	January 1, 2003	January 1, 2004
Superannuation	$2,652,399	$1,934,990
Death	0	135,178
Disability	0	415,810
Terminations	0	277,868
Administrative Expenses	125,000	125,000
Total Normal Cost	2,777,399	2,888,846
% of Pay	13.0%	13.4%
Employee Contributions	1,792,372	1,717,504
% of Pay	8.4%	7.9%
Employer Normal Cost	$985,027	$1,171,342
% of Pay	4.6%	5.4%

Present Value of Actuarial Accrued Liabilities

The actuarial accrued liabilities (AAL) represents today's value of all benefits earned by the actives and inactives. The AAL can be compared to the assets to determine the funded status of the Plan. The value of these earned benefits is shown in Table II below.

Table II

	January 1, 2003	January 1, 2004
Actives		
Superannuations	$47,870,610	$44,341,531
Death	0	$1,173,085
Disability	0	$2,315,348
Terminations	0	($800,769)
Retirees and Inactives		
Retirees	50,683,671	56,528,550
Disabled Retirees	9,011,173	9,003,607
Inactives	972,302	865,315
Total	$108,537,756	$113,426,667

Present Value of Future Benefits

The present value of future benefits represents today's value of all benefits earned by the inactives as well as all benefits earned and expected to be earned in the coming years by the actives. The difference between the present value of future benefits and the present value of actuarial accrued liabilities is the value of benefits to be earned in the coming years. The value of the total expected benefits is shown in Table III.

Table III

	January 1, 2003	January 1, 2004
Actives		
Superannuation	$61,525,841	$61,554,364
Death	2,313,482	2,360,139
Disability	5,995,172	5,841,952
Terminations	1,942,298	1,936,078
Inactives		
Retirees	50,683,671	56,528,550
Disabled Retirees	9,011,173	9,003,607
Inactives	972,302	865,315
Total	$132,443,939	$138,090,005

P:\Actrl\19028Needham\Val04\[Needham04_Val.xls]Output

Funded Status and Appropriations:

Market Value of Plan Assets

The trust fund composition on a market value basis is shown in Table IV.

Table IV

	January 1, 2003	January 1, 2004
Cash equivalents	1,145,880	$1,157,902
Short term investments	0	0
Fixed income securities	0	0
Equities	68,287,196	82,311,735
International	0	0
Real Estate	0	0
Venture Capital	0	0
Other	0	0
Accounts receivable	2,977	13,781
Accounts payable	(20,991)	(14,170)
Accrued income	0	0
Total Market Value	$69,415,062	$83,469,248
Total Actuarial Value	$76,356,568	$82,910,726

P:\Actrl\19028Needham\Val04\[neassets04.xls]output

Actuarial Value of Assets

The actuarial value of assets is determined by projecting the market value of assets as of the beginning of the prior plan year with the assumed rate of return during that year (8.25%) and accounting for deposits and disbursements with interest at the assumed rate of return. An adjustment is then applied to recognize the difference between the actual investment return and expected return over a five year period. This preliminary actuarial value is not allowed to differ from the market value of assets by more than 10%. The calculation of the actuarial value of assets as of January 1, 2004 is presented in Table V.

Table V

		January 1, 2004
(1)	Market value at January 1, 2003	$69,415,062
(2)	2003 Contributions	$4,965,190
(3)	2003 Payments	($7,904,422)
(4)	Net interest adjustment at 8.25% on (1), (2), and (3) to December 31, 2003	$5,605,499
(5)	Expected market value on January 1, 2004 (1) + (2) + (3) + (4)	$72,081,329
(6)	Actual market value on January 1, 2003	$83,469,248
(7)	2003 (Gain) / Loss	($11,387,918)
(8)	80% of 2003 (Gain) / Loss	($9,110,335)
(9)	2002 (Gain) / Loss	$13,990,074
(10)	60% of 2002 (Gain) / Loss	$8,394,045
(11)	2001 (Gain) / Loss	$12,412,619
(12)	40% of 2001 (Gain) / Loss	$4,965,047
(13)	2000 (Gain) / Loss	($24,036,394)
(14)	20% of 2000 (Gain) / Loss	($4,807,279)
(15)	Actuarial value on January 1, 2004, (6) + (8) + (10) + (12) + (14) but not less than 90% nor greater than 110% of (6)	$82,910,726
	Ratio of actuarial value to market value	99.33%

Unfunded Actuarial Accrued Liabilities

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Accrued Liability represents what the accumulated assets would have been as of the valuation date if:

- current plan provisions and assumptions had always been in effect,
- experience conformed exactly to assumptions, and
- the normal cost had been contributed each year since inception.

The actuarial value of the Fund's assets as of the end of the prior year are subtracted from the Actuarial Accrued Liability (AAL) to determine the Unfunded Actuarial Accrued Liability (UAAL) as of the valuation date. Over time, annual pension contributions will accumulate Plan assets equal to the AAL, and the UAAL will be eliminated. Thereafter, annual contributions equal to the normal cost will keep the Plan's assets and liabilities in balance. The UAAL is developed in Table VI.

Table VI

	January 1, 2003	January 1, 2004
Actuarial Accrued Liability	$108,537,756	$113,426,667
Actuarial Assets	76,356,568	82,910,726
Unfunded Actuarial Accrued Liability	$32,181,188	$30,515,941
Funded Status	70.4%	73.1%

Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2028, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the prior unfunded actuarial accrued liability by June 30, 2022
  $ 30,515,941 over 18 years with 4.5 % increasing payments
- Interest adjustment for payments deposited at the beginning of the fiscal year.

The pension appropriation is shown in Table VII.

Table VII

	January 1, 2003	January 1, 2004
Normal cost	$985,027	$1,171,342
Amortization payment of the prior accrued liability	1,248,631	2,216,860
Amortization payment of prior (gains)/losses	0	0
Amortization payment of current (gains)/losses	0	0
Total cost	$2,233,658	$3,388,202
% of Pay	10.4%	15.7%
Fiscal 2005 cost	$3,525,196	$3,525,196
Fiscal 2006 cost	$3,733,000	$3,696,416

Appropriation Forecast

The following exhibit forecasts employer and employee contributions over the next 32 years under the adopted funding schedule.

Note that the forecast is based upon an "open group" method. This method assumes that sufficient employees will be hired each year to keep the number constant. The total payroll of the system is expected to increase 4.5% per year. The employee contribution rate is expected to increase to 10.5% by 2028 as members contributing base percentages 5%, 7%, and 8% are replaced by new members, whose base contribution is 9%. Payments are assumed to be made at the beginning of the year.

The employer total cost is expected to increase during the next 18 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total cost represents 16.6% of payroll, decreasing to 14.5% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 3.5% thereafter. The decrease in the cost as a percentage of payroll is a result of the increase in member deductions.

P:\Actrl\19028Needham\Val04\[Needham04_Val.xls]Approp. Results

Appropriation Forecast
(amounts in thousands)

Fiscal Year Ending	Payroll*	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Funded Ratio %**
2005	$21,633	$1,718	$1,219	$2,306	$3,525	16.3	73.1
2006	22,607	1,820	1,247	2,449	3,696	16.3	73.9
2007	23,624	1,928	1,276	2,559	3,835	16.2	74.9
2008	24,687	2,042	1,305	2,674	3,979	16.1	75.8
2009	25,798	2,163	1,334	2,795	4,129	16.0	76.9
2010	26,959	2,290	1,363	2,921	4,283	15.9	78.0
2011	28,172	2,425	1,391	3,052	4,443	15.8	79.2
2012	29,440	2,567	1,420	3,189	4,609	15.7	80.5
2013	30,765	2,716	1,448	3,333	4,781	15.5	81.8
2014	32,149	2,875	1,476	3,483	4,959	15.4	83.3
2015	33,596	3,041	1,503	3,640	5,143	15.3	84.8
2016	35,108	3,217	1,530	3,803	5,334	15.2	86.4
2017	36,688	3,403	1,557	3,974	5,531	15.1	88.1
2018	38,339	3,599	1,582	4,153	5,736	15.0	89.9
2019	40,064	3,805	1,607	4,340	5,947	14.8	91.8
2020	41,867	4,023	1,631	4,536	6,167	14.7	93.7
2021	43,751	4,253	1,654	4,740	6,393	14.6	95.7
2022	45,720	4,495	1,675	4,953	6,628	14.5	97.8
2023	47,777	4,751	1,695	0	1,695	3.5	100.0
2024	49,927	5,020	1,714	0	1,714	3.4	100.0
2025	52,174	5,304	1,730	0	1,730	3.3	100.0
2026	54,521	5,603	1,745	0	1,745	3.2	100.0
2027	56,975	5,919	1,758	0	1,758	3.1	100.0
2028	59,539	6,252	1,768	0	1,768	3.0	100.0
2029	62,218	6,533	1,847	0	1,847	3.0	100.0
2030	65,018	6,827	1,930	0	1,930	3.0	100.0
2031	67,944	7,134	2,017	0	2,017	3.0	100.0
2032	71,001	7,455	2,108	0	2,108	3.0	100.0
2033	74,196	7,791	2,203	0	2,203	3.0	100.0
2034	77,535	8,141	2,302	0	2,302	3.0	100.0
2035	81,024	8,508	2,406	0	2,406	3.0	100.0
2036	84,670	8,890	2,514	0	2,514	3.0	100.0

* Calendar basis

** As of beginning of the Fiscal Year

GAS No. 25 and GAS No. 27

Effective for periods beginning after June 15, 1997, the Governmental Accounting Standards Board (GASB) requires the disclosure of pension related liabilities for public employer financial statements in accordance with Statements 25 and 27. These statements, which replace GASB Statement No. 5, must be adhered to by any public employee retirement system that follows Generally Accepted Accounting Principles (GAAP).

These disclosures are intended to establish a reporting framework that distinguishes between:

- current financial information about plan assets and financial activities,
- actuarially determined information from a long-term perspective,
- the funded status of the plan, and
- progress being made in accumulating sufficient assets to pay benefits when due.

Footnote disclosures required by GASB Statement No. 25 and 27 include a description of the plan, a summary of significant accounting policies, and information about contributions, legally required reserves, and investment concentrations. As a result of the oversight of the Public Employees Retirement Administration Commission (PERAC) and the conversion of unpaid contributions to pension related debt, the Net Pension Obligation (NPO) as required by Statement No. 27 will effectively always be equal to $0. The required disclosure information is shown in Table VIII.

Table VIII

		January 1, 2003	January 1, 2004
(1)	Actuarial Accrued Liability	$108,537,756	$113,426,667
(2)	Actuarial Value of Assets	76,356,568	82,910,726
(3)	Unfunded Actuarial Accrued Liability	32,181,188	30,515,941
(4)	Funded Ratio (2)/(1)	70.4%	73.1%
(5)	Covered Payroll	$21,380,463	$21,633,442
(6)	UAAL as a percentage of payroll: (3)/(5)	150.5%	141.1%
(7)	Annual Required Contribution (ARC)	$2,325,796	$3,525,196
(8)	Net Pension Obligation	$0	$0

PERAC Annual Statement
APPENDIX PAGE 3
ACTUARIAL VALUATION AND ASSUMPTIONS

The most recent actuarial valuation of the System was prepared by Mellon Human Resources & Investor Solutions as of January 1, 2004.

The normal cost for employees on that date was:	$1,717,504	7.9% of pay
The normal cost for the employer was:	1,046,342	4.8% of pay

The actuarial liability for active members was:	$47,029,195
The actuarial liability for retired members was:	66,397,472
Total actuarial accrued liability:	113,426,667
System assets as of that date:	82,910,726
Unfunded actuarial accrued liability:	$30,515,941

The ratio of system's assets to total actuarial liability was 73.1%

The principal actuarial assumptions used in the valuation are as follows:

Investment Return:	8.25%
Rate of Salary Increase:	5.25%

SCHEDULE OF FUNDING PROGRESS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded Actuarial Accrued Liability (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a percent of Covered Payroll (b-a)/c
01/01/04	$82,910,726	$113,426,667	$30,515,941	73.1%	$21,633,442	141.1%
01/01/03	76,356,568	108,537,756	32,181,188	70.4%	21,380,463	150.5%
01/01/00	80,624,013	88,236,491	7,612,478	91.4%	18,313,876	41.6%
01/01/97	50,591,567	69,604,902	19,013,335	72.7%	16,120,405	117.9%
01/01/95	41,448,079	66,617,237	25,169,158	62.2%	12,547,993	200.6%

Attach Copy of Current Approved Funding Schedule

EXHIBITS

P:\Actrl\19028Needham\Val04\[ACT1.XLS]Actives

Age/Service Distribution with Salary as of January 1, 2004

Attained Age	Average Salary <5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 20	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
20-24	8	0	0	0	0	0	0	0	0	8
	20,634	0	0	0	0	0	0	0	0	20,634
25-29	52	4	0	0	0	0	0	0	0	56
	23,844	42,513	0	0	0	0	0	0	0	25,177
30-34	37	18	0	0	0	0	0	0	0	55
	33,209	41,061	0	0	0	0	0	0	0	35,779
35-39	26	17	8	6	0	0	0	0	0	57
	33,743	44,389	49,507	44,982	0	0	0	0	0	40,313
40-44	33	22	15	15	1	0	0	0	0	86
	27,375	30,184	42,721	57,386	38,847	0	0	0	0	36,138
45-49	42	13	12	22	8	3	0	0	0	100
	20,345	39,294	36,033	53,930	49,931	61,976	0	0	0	35,695
50-54	25	15	13	8	7	14	3	0	0	85
	22,568	25,652	33,024	45,663	52,115	60,031	61,999	0	0	36,880
55-59	25	22	9	9	2	6	12	8	1	94
	24,329	28,053	34,549	41,068	50,945	60,320	67,651	56,093	39,594	39,042
60-64	9	2	7	8	9	3	2	2	3	45
	34,043	26,057	25,236	36,380	40,644	45,040	52,733	44,794	99,361	40,450
65-69	3	1	1	3	0	2	0	0	0	10
	9,622	55,834	39,332	24,657	0	27,846	0	0	0	25,369
70+	0	2	1	1	1	1	1	0	0	7
	0	32,676	40,331	37,263	14,022	37,277	42,398	0	0	33,806
Total Employees	260	116	66	72	28	29	18	10	4	603
Average Salary	26,064	34,602	37,361	47,977	45,886	55,737	63,649	53,833	84,419	35,876

P:\Actrl\19028Needham\Val04\[RET1.XLS]Retirees

Retiree Distribution as of January 1, 2004

	Number of Employees			Total Payments		
Attained Age	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	2	0	2	33,740	0	33,740
45-49	0	0	0	0	0	0
50-54	3	1	4	68,210	25,014	93,224
55-59	9	5	14	340,624	37,108	377,732
60-64	30	34	64	829,637	420,676	1,250,313
65-69	31	42	73	733,835	494,390	1,228,225
70-74	39	42	81	773,632	432,305	1,205,937
75-79	43	62	105	762,397	565,985	1,328,383
80-84	26	50	76	397,442	358,814	756,256
85-89	13	27	40	196,065	161,107	357,172
90-94	10	6	16	93,920	45,390	139,310
95-99	4	5	9	34,486	34,358	68,845
Total	210	274	484	4,263,989	2,575,148	6,839,137
Average (Age/Payment)	73.7	75.5	74.7	20,305	9,398	14,130
Frequency Percent	43.4	56.6	100	62.3	37.7	100

P:\Actrl\19028Needham\Val04\[DIS1.XLS]Disabled

Disabled Retiree Distribution as of January 1, 2004

	Number of Employees			Total Payments		
Attained Age	Male	Female	Total	Male	Female	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	0	0	0	0	0	0
35-39	1	0	1	19,658	0	19,658
40-44	0	0	0	0	0	0
45-49	1	0	1	44,952	0	44,952
50-54	0	2	2	0	43,379	43,379
55-59	8	0	8	226,119	0	226,119
60-64	8	0	8	171,991	0	171,991
65-69	7	0	7	202,934	0	202,934
70-74	8	0	8	169,958	0	169,958
75-79	2	1	3	46,698	13,526	60,224
80-84	3	0	3	45,351	0	45,351
85-89	1	1	2	17,938	14,655	32,594
90-94	0	0	0	0	0	0
95-99	0	0	0	0	0	0
Total	39	4	43	945,600	71,561	1,017,160
Average (Age/Payment)	66.4	67.7	66.5	24,246	17,890	23,655
Frequency Percent	90.7	9.3	100	93	7	100

EXHIBIT 4 - CASHFLOW FORECAST:

The following is a 30 year forecast of benefit payments net of state reimbursable COLA payments, Contribution Income and Investment Returns.

Plan Year Ending	Benefit Payments	Employee Contributions	Employer Contributions	Investment Returns	Net change in plan assets
2004	$7,944	$1,718	$3,525	$6,668	$3,967
2005	8,241	1,820	3,696	6,992	4,267
2006	8,551	1,928	3,835	7,340	4,552
2007	8,904	2,042	3,979	7,710	4,827
2008	9,258	2,163	4,129	8,103	5,137
2009	9,537	2,290	4,283	8,525	5,561
2010	9,861	2,425	4,443	8,981	5,988
2011	10,172	2,567	4,609	9,473	6,477
2012	10,457	2,716	4,781	10,006	7,046
2013	10,810	2,875	4,959	10,585	7,609
2014	11,106	3,041	5,143	11,213	8,291
2015	11,406	3,217	5,334	11,898	9,043
2016	11,683	3,403	5,531	12,646	9,897
2017	11,993	3,599	5,736	13,464	10,806
2018	12,276	3,805	5,947	14,359	11,835
2019	12,592	4,023	6,167	15,338	12,936
2020	12,922	4,253	6,393	16,408	14,132
2021	13,250	4,495	6,628	17,578	15,451
2022	13,606	4,751	1,695	18,647	11,487
2023	13,897	5,020	1,714	19,592	12,429
2024	14,234	5,304	1,730	20,614	13,414
2025	14,579	5,603	1,745	21,718	14,487
2026	14,895	5,919	1,758	22,911	15,693
2027	15,229	6,252	1,768	24,204	16,995
2028	15,500	6,533	1,847	25,605	18,485
2029	15,689	6,827	1,930	27,132	20,200
2030	15,872	7,134	2,017	28,802	22,081
2031	16,009	7,455	2,108	30,629	24,183
2032	16,097	7,791	2,203	32,632	26,529
2033	16,637	8,141	2,302	34,811	28,617

amounts in thousands

EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2004, and does not take into account any subsequent changes.

1. Administration

Each of the 107 contributory retirement systems for public employees for the Commonwealth of Massachusetts are guided by the applicable provisions of Chapter 32 of the Massachusetts General Laws and other applicable statutes. Although these boards operate semi-independently, there is a uniform set of rules governing benefits, eligibility, contributions, financing, and accounting.

2. Participation

Participation is mandatory for all full-time employees whose employment commences prior to age 65. Eligibility with respect to part-time, professional, temporary, or intermittent employment is governed by the local board. Membership is optional for certain elected officials, State officials appointed by the Governor, and certain hospital interns.

There are four classes of membership as follows:

(i) Group 1: Most general employees in State and local government

(ii) Group 2: Certain specified hazardous duty positions

(iii) Group 3: State police officers and inspectors

(iv) Group 4: Local police officers, firefighters, and designated employees of the municipal light department.

For members in more than one group, participation will be proportional.

3. Salary

Salary is defined as gross regular compensation. Salary does not include bonuses, overtime, severance pay, unused sick leave credit, or other similar compensation.

4. Member Contributions

Member contributions vary depending upon date hired as follows:

Date of Hire	Member Contribution Rate
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later plus	9.0% of Salary
1979 and Later	2.0% of Salary in excess of $30,000

5. Average Salary

Average salary is used to determine a participant's benefit. It is defined as the average salary during the three consecutive-year period that produces the highest average. (Alternatively, if a greater amount results, it is the average rate of salary earned during the period or periods, whether or not consecutive, that constitutes the last three years preceding retirement.)

6. Creditable Service

In general, creditable service is awarded during the period in which a member contributes to the retirement system.

7. Service Retirement

a. Eligibility:

For an employee to be eligible for service retirement (also referred to as superannuation), one of the following conditions must be met:

(i) completion of 20 years of service

(ii) for an employee hired prior to January 1, 1978, attainment of age 55 as an active member

(iii) for an employee hired on or after January 1, 1978, attainment of age 55 as an active member and completion of ten years of service

(iv) if an employee is a State Police officer (Group 3), attainment of age 50

b. Benefit Amount:

The retirement allowance is determined as a product of the participant's Benefit Rate times Average Salary times Creditable Service, where Benefit Rate is determined from the following table:

Age at Retirement	Percentage of Average Salary Group 1	Group 2	Group 4
65 or Over	.025	.025	.025
64	.024	.025	.025
63	.023	.025	.025
62	.022	.025	.025
61	.021	.025	.025
60	.020	.025	.025
59	.019	.024	.025
58	.018	.023	.025
57	.017	.022	.025
56	.016	.021	.025
55	.015	.020	.025
54	.014	.014	.024
53	.013	.013	.023
52	.012	.012	.022
51	.011	.011	.021
50	.010	.010	.020
49	.009	.009	.019
48	.008	.008	.018
47	.007	.007	.017
46	.006	.006	.016
45	.005	.005	.015
44	.004	.004	.004
43	.003	.003	.003
42	.002	.002	.002
41	.001	.001	.001

For Group 3 (State Police), the benefit is 50% of the participant's final year's rate of regular salary, plus an additional 1% for each year of service in excess of 20 years. In addition, for veterans (all groups) there is an additional benefit of $15 per year for each year of service, up to a maximum of 20 years of service.

8. Deferred Vested Retirement

a. Eligibility:

A participant who has completed ten or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary, the participant is vested after six years.

b. Benefit Amount:

The participant's accrued benefit is payable commencing at age 55, or may be deferred until later at the employee's option.

c. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions. Members with ten or more years of service are entitled to 100% of the credited interest on their contributions. Members with five to ten years of service are entitled to 50% of the credited interest on their contributions. No credited interest is provided for members with less than five years of service.

9. Accidental Disability

a. Eligibility:

Participants are eligible for an accidental disability benefit, regardless of service or age, if they become permanently and totally incapacitated for further duty as a result of personal injury sustained while in the performance of duties.

b. Benefit Amount:

The accidental disability amount is 72% of annual salary plus $450 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.

10. Ordinary Disability

a. Eligibility:

An ordinary disability occurs when a member becomes permanently and totally disabled due to sickness or injury that is not job related. In order to be eligible for an ordinary disability benefit, a member must have ten years of service (and be less than age 55).

b. Benefit Amount:

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55. If the member was a veteran, the benefit is 50% of the member's final rate of Salary during the preceding 12 months, plus an annuity based upon accumulated Member Contributions plus credited interest. If the participant is over age 55, he will receive not less than the superannuation allowance to which he is entitled.

11. Survivor Benefits

a. Occupational Death:

The survivors of a member who dies due to an occupational injury will be entitled to a lump sum return of contributions plus a pension benefit equal to 72% of the participant's annual Salary.

b. Non-Occupational Death:

Upon the death of a member other than due to an occupational injury, the designated beneficiary will be entitled to a retirement benefit as if Option C had been elected with a minimum of $250 per month to the surviving spouse, plus $120 for the first child, plus $90 for each additional child. If no beneficiary is designated and if the employee worked two years, and is married at least one year, the spouse may elect benefits. If there is no designated beneficiary or surviving spouse, then member contributions are returned. If there are dependent children but no surviving spouse, they may elect minimum survivor benefits of $250 per month plus $120 for the first child and $90 for each additional child.

c. Refund of Contributions:

Upon the death of a member not entitled to survivor benefits, the beneficiary is entitled to a refund of all member contributions with interest.

12. Cost-of-Living Increases

In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a cost-of-living adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees, and beneficiaries who have been receiving benefits payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is $12,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.

13. Postretirement Death Benefits

Any benefits following the death of a member after retirement are based upon the form of benefit the participant elected at the time of retirement. There are three available forms as follows:

(i) Option A – Life annuity

(ii) Option B – Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member

(iii) Option C – Life annuity with 66-2/3% of benefit continued after death of member to designated joint annuitant

EXHIBIT 6 – ACTUARIAL METHODS AND ASSUMPTIONS:

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below.

1. Member Data

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired, and disabled members of the employer as supplied by the employer to the actuary.

2. Valuation Date

January 1, 2004.

3. Actuarial Cost Method

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

4. Rate of Investment Return

It is assumed that the assets of the fund will accumulate at a compound annual rate of 8.25% per annum.

5. Salary Scale

It is assumed that salaries including longevity will increase at a rate of 5.25% per year.

6. Cost-of-Living Increases

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and $12,000 per year.

7. Value of Investments

Assets held by the fund are valued at market value as reported by the Public Employees'

Retirement Administration Commission (PERAC). The actuarial value of assets is determined using a five-year smoothing of unrealized gains and losses.

8. Annual Rate of Withdrawal Prior to Retirement

Based on an analysis of experience, the assumed annual rates of withdrawal may best be illustrated by the following rates at the following ages:

Service	General Employees	Police and Fire Employees
0	0.1500	0.0150
10	0.0540	0.0150
20	0.0200	0.0000
30	0.0000	0.0000

9. Annual Rate of Mortality

It is assumed that both preretirement and postretirement mortality are represented by the RP-2000 Mortality Table for males and females. Mortality for disabled members is represented by the RP-2000 Mortality Table set forward two years for all disabled members.

10. Service Retirement

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages:

Age	Male General Employees	Female General Employees	Male and Female Police and Fire Employees
50	0.0100	0.0150	0.02000
51	0.0100	0.0150	0.02000
52	0.0100	0.0200	0.02000
53	0.0100	0.0250	0.05000
54	0.0200	0.0250	0.07500
55	0.0200	0.0550	0.15000
56	0.0250	0.0650	0.10000
57	0.0250	0.0650	0.10000
58	0.0500	0.0650	0.10000
59	0.0650	0.0650	0.15000
60	0.1200	0.0500	0.20000
61	0.2000	0.1300	0.20000
62	0.3000	0.1500	0.25000
63	0.2500	0.1250	0.25000
64	0.2200	0.1800	0.30000
65	0.4000	0.1500	1.00000
66	0.2500	0.2000	1.00000
67	0.2500	0.2000	1.00000
68	0.3000	0.2500	1.00000
69	0.3000	0.2000	1.00000
70	1.0000	1.0000	1.00000

11. Annual Rate of Disability Prior to Retirement

Based on an analysis of experience, the assumed annual rates of disability may best be illustrated by the following probabilities at the following ages:

Attained Age	General Employees	Police and Fire Employees
20	0.0001	0.0001
30	0.0003	0.0003
40	0.0010	0.0030
50	0.0019	0.0125

In addition, it is assumed for the general employees that 45% of all disabilities are ordinary (55% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).

12. Family Composition

It is assumed that 80% of all members will be survived by a spouse and that females (males) are three years younger (older) than members.

13. Administrative Expenses

The normal cost is increased by an amount equal to the anticipated administrative expenses for the upcoming fiscal year. The amount for fiscal year 2004 is $125,000 and is anticipated to increase at 4.5% per year.

EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. Actuarial Accrued Liability

That portion of the Actuarial Present Value of plan benefits that is not provided for by future employer Normal Costs or employee contributions.

2. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting the Retirement System such as:

- Rates of investment returns
- Increases in a member's salary
- Inflation
- The probability of mortality, turnover, disablement
- Retirement at each age and other relevant items

3. Actuarial Cost Method

A procedure for allocating the Actuarial Present Value of pension plan benefits between Normal Cost and Actuarial Accrued Liability.

4. Actuarial Present Value

The single sum amount required at the valuation date that is required to provide for anticipated future events based upon the terms of the plan and the Actuarial Assumptions.

5. Forecast

A projection of future benefit payments or contribution requirements based upon the terms of the plan, the current asset amounts, the Actuarial Assumptions, and additional assumptions as to the replacement of terminating employees with new employees.

6. **Normal Cost**

That portion of the Actuarial Present Value of future benefits that is assigned to the current year.

7. **Unfunded Actuarial Accrued Liability**

That portion of the Actuarial Accrued Liability that is not provided for by current actuarial value of assets.

8. **Valuation Method**

The method used to divide the cost of future benefits among the Actuarial Accrued Liability, the current year's Normal Costs, and future years' Normal Costs. The resulting current funding requirement is then determined as the current year's Normal Cost plus the payment necessary to amortize the Unfunded Actuarial Liability.

9. **Vested Liability**

That portion of the Actuarial Present Value of Accrued Benefits that a member would be entitled to if the member terminated employment with the employer as of the valuation date.

CERTIFICATION:

This report fairly represents the actuarial position of the Town of Needham Contributory Retirement System contributing as of January 1, 2004, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost is reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

Mellon Human Resources and Investor Solutions

____

Daniel W. Sherman, ASA, MAAA
Enrolled Actuary No. 99-4086

April 2004